

# STATE OF ALASKA

## DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

CENTRAL REGION - PLANNING

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September 21, 2004

Mr. Geoffrey Y. Parker  
703 I Street, Suite 226  
Anchorage, AK 99501

Subject: Comments on Draft Revision to Southwest Alaska Transportation Plan

Dear Mr. Parker:

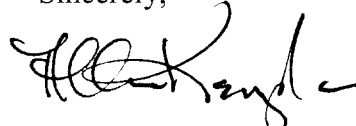
Thank you for your letter of August 6, 2004 concerning a revision to the Southwest Alaska Transportation Plan. Your letter transmitted comments prepared by Dr. John W. Duffield. In responding to the comments, it is helpful to recall the purpose for the proposed revision to the plan and the role of an area plan, such as the Southwest Alaska Transportation Plan, in the planning and development process for transportation projects.

The Southwest Alaska Transportation Plan is being revised in response to a recent court order (Superior Court for the State of Alaska, Third Judicial District at Anchorage, Case No. 3AN-02-09363 CI, January 5, 2004). The court order directed the Department to halt all work on the Iliamna-Nondalton road and bridge project until the economic costs and benefits are considered in the next revision of the Southwest Plan. The Department has undertaken such a revision, extracting two projects from the previously defined baseline for the Southwest Plan, the Iliamna-Nondalton and the Dillingham-Aleknagik corridor projects, and subjecting them to the evaluation process used to assess other projects in the Southwest Alaska Transportation Plan. This evaluation process considers the costs and benefits of new transportation modes and facilities, as required by AS 44.42.050.

Enclosed is a detailed response to Dr. Duffield's comments. Your continued interest in this project is noted and we hope the Revised Southwest Alaska Transportation Plan meets your expectations.

Thank you for your input.

Sincerely,



Allen Kemplen, AICP  
Southwest Area Planner

/eh

Enclosure

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**To:** Allen Kemplen  
**From:** Mark Scheibe  
**Date:** 13 September 2004  
**Subject:** Response to Comments on Draft Revision to Southwest Alaska Transportation Plan, transmitted by Mr. Geoffrey Y. Parker, August 6, 2004

Mr. Parker's letter transmitted comments prepared by Dr. John W. Duffield. In responding to the comments, it is helpful to recall the purpose for the proposed revision to the plan and the role of an area plan, such as the Southwest Alaska Transportation Plan, in the planning and development process for transportation projects.

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The Southwest Alaska Transportation Plan is a component of the Alaska Statewide Transportation Plan. The Statewide Transportation Plan consists of Vision: 2020, the Statewide Transportation Policy Plan and several Area Transportation Plans, which are regional, multi-modal transportation plans developed for specific areas of the state, designed to address movement between communities in the region and from the region to points beyond. Consistent with State (17 AAC 05.130) and Federal (23 CFR 450.214) regulations the statewide transportation plan is intended to guide the development of a range of transportation options designed to meet the transportation needs (both passenger and freight) of the state, including all modes and their connections, over a period of at least 20 years. At the Statewide or Area plan level, transportation improvements are identified, evaluated and prioritized in terms of scope and design concept; i.e. what the improvement is intended to accomplish (e.g. provide a land connection among communities between Cook Inlet and Bristol Bay) and what is its location, general alignment and approximate cost. It should be noted that neither State nor Federal regulations specify a particular evaluation methodology that is to be used in developing a Statewide Transportation Plan.

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In addition to the transportation planning process, Alaska, in common with all other states, has a separate but related transportation programming process to allocate funding to projects. This allocation of funds is documented in the Statewide Transportation Improvement Program or STIP. The STIP is a staged, multiyear, statewide, multimodal, financially constrained list of transportation projects which is consistent with the Statewide Transportation Plan. Consistent with State (17 AAC 05.155) and Federal (23 CFR 450.216) regulations, the STIP is a short-range document; it identifies which projects are to move forward in the project development process over the next three-year period.

The third step in the implementation process is project-level planning, design and environmental analysis. In this step various design options are examined to meet the scope and design concept identified in the Statewide Transportation Plan. Costs and impacts specific to the different design options are identified and a choice is made among the alternatives examined, including the option of not proceeding with the project (No-Build Alternative). For Federally-funded projects, project-level planning findings are documented in an environmental document prepared consistent with 23 CFR Part 771.

To summarize, different types of evaluations occur in each stage of the project implementation process. At the Statewide Plan stage, transportation improvements are identified, evaluated and prioritized within the context of how they meet the goals of the Plan. At the STIP level, transportation improvements are compared to one another within the context of deciding which should be funded within the next three-year period. At the project-level planning, design and environmental analysis stage, choices among different design options for a specific transportation improvement are made. The Draft Revision to the Southwest Alaska Transportation Plan involves only the first stage of project evaluations.

Turning to Dr. Duffield's comments, two major themes emerge. The first theme draws comparisons between the Draft Revision to Southwest Alaska Transportation Plan and a 1986 DOT&PF document, Nondalton–Newhalen/Iliamna Pioneer Road Economic Feasibility Study. Dr. Duffield uses the data presented in the Draft Revision to Southwest Alaska Transportation Plan to attempt to calculate a benefit-cost ratio for the Iliamna–Nondalton project, similar to what was done in the 1986 document. He provides various comments and several pages of calculations to conclude that in his opinion the Iliamna–Nondalton project is not economically justified because it has a benefit cost-ratio less than 1.0, i.e., the benefits, in dollar terms, that he calculates are less than the costs, in dollar terms, that he calculates.

These calculations, however, are not relevant to the intent of the plan revision. The Southwest Alaska Transportation Plan does not use a benefit-cost ratio to evaluate various road projects proposed for inclusion in the plan. Rather a cost-effectiveness methodology is used. As noted previously, the Draft Revision to the Southwest Alaska Transportation Plan extracted two projects from the previously defined baseline for the Southwest Plan, the Iliamna–Nondalton and the Dillingham–Aleknagik corridor projects, and subjected them to the same evaluation process used to assess other projects in the Southwest Alaska Transportation Plan. To have

used a different evaluation methodology, such as a benefit-cost analysis, to evaluate the Iliamna–Nondalton project would have been inconsistent with the January 5, 2004 court order.

Further, the use of a cost-effectiveness framework for evaluating projects in the Southwest Alaska Transportation Plan rather than an economic benefit-cost analysis was intentional. The cost-effectiveness framework was described in the Southwest Alaska Transportation Plan, Final Edition, November 2002 and its use is specifically noted in the January 5, 2004 court order. The Evaluation Methodology section of the Technical Memorandum on Revised Cost and Effectiveness Measures, Draft for Public Review, June 2004, pages 4 and 5, discusses in more detail the evaluation approach that is used for the Plan and notes some reasons for not choosing a purely economic evaluation framework, such as a cost-benefit ratio. It should be reiterated that AS 44.42.050 does not require use of such a purely economic evaluation framework. To quote from the January 5, 2004 court order, "The Statute does not require that the economic cost of a project, and associated economic benefit for new projects, serve as the sole or even primary determinants of a project's viability and the priority that should be accorded to that project."

Within a larger context, the use of a cost-effectiveness framework for evaluating transportation alternatives as a means of avoiding the weaknesses inherent in a benefit-cost analysis has long been recognized in the transportation planning profession (for example, Strategies for the Evaluation of Alternative Transportation Plans, National Cooperative Highway Research Program Report 96, 1970.). As a point of reference, it is also worth noting that the only nationwide comparison of surface transportation projects that is undertaken by a U.S.D.O.T. administration used a measure of cost-effectiveness similar to that used in the Southwest Alaska Transportation Plan for many years. Specifically, the Federal Transit Administration's evaluation of transit major capital investments used a cost-effectiveness measure of incremental cost per incremental passenger in its reports to Congress through 2002. (FTA has now changed its cost-effectiveness measure to incremental cost per hour of transportation system user benefit.)

The second major theme of Dr. Duffield's comments is that the cost-effectiveness framework used in the Southwest Alaska Transportation Plan is flawed. His two assertions are that (1) the measure of effectiveness chosen, person trips per year, is negatively correlated with a subset of the goals the project (i.e. the Iliamna–Nondalton Road) is intended to serve and (2) that the travel demand forecasts presented are not reliable.

What Dr. Duffield apparently means by his first assertion is that while some of the Southwest Alaska Transportation Plan Goals are met by a project that results in increased travel between communities, others are not; that some of the goals are achieved when travel does not increase.

In response, it should be noted that the discussion of the Plan's Goals and Objectives (Southwest Alaska Transportation Plan, Final Edition, November 2002, page 14) recognizes that making transportation decisions involves trade-offs; that total devotion to any particular goal can only come at the expense of others. Any set of multiple goals developed by humans will

contain some internal conflicts so no project can be expected to fully achieve every goal. Dr. Duffield does not dispute that increased travel is a valid measure of achievement of four of the six goals. His assertion of "negative correlation" concerns two goals, Goal 3: Enhance Transportation System Efficiency and Goal 6: Develop and Protect Economic and Subsistence Resources.

With respect to Goal 3: Enhance Transportation System Efficiency, Dr. Duffield notes "the project as proposed is ... at odds with transportation efficiency, ... on the grounds of benefit-cost findings considerably below one." His assumption that transportation system efficiency requires benefit-cost ratios greater than 1.0 for the individual projects that make the system is unsupported. The intent of Goal 3 can be determined by examining some of the objectives associated with the goal. Some associated objectives include: "Identify and connect regional and subregional hubs with surrounding service area, where practical and desired by the affected communities, so as to support consolidation and improvement of regional and subregional facilities and services" and "Provide missing intermodal links which would enhance the efficiency of the transportation system." The Iliamna-Nondalton project would facilitate connections between Nondalton and the regional aviation hub at Iliamna and to marine facilities on Iliamna Lake. These connections would meet objectives identified for Goal 3.

With respect to Goal 6: Develop and Protect Economic and Subsistence Resources, Dr. Duffield asserts that increased person travel is negatively correlated with achievement of this goal, in other words that increased travel resulting from the Iliamna-Nondalton project and the entire road connection between Cook Inlet and Bristol Bay will have negative economic impacts on the Southwest Alaska economy and on subsistence resources. Concerning the Southwest Alaska economy, the Southwest Alaska Transportation Plan (Final Edition, November 2002, page 7) acknowledges that the region's remoteness provides some advantages for economic development but also notes that the area's remoteness and lack of a more developed transportation infrastructure pose significant economic disadvantages. The development of the Southwest Alaska Transportation Plan involved an extensive public participation process and this public dialogue established that improved access is desirable for the region's economic future and so use of increased person travel is an appropriate measure of achievement of Goal 6.

Further, several of Dr. Duffield's comments indicate a misunderstanding of the scope of the proposed roadway system linking Cook Inlet and Bristol Bay and perhaps of the Iliamna-Nondalton project as well. Dr. Duffield draws comparisons between the fisheries in Southwest Alaska and areas such as the Kenai and Russian River (e.g. Comment 31: "The empirical economic comparison of the Nushagak and Kenai River fisheries suggest that road access, particularly for the larger Cook Inlet-Bristol Bay project, could significantly impact these currently remote, uncrowded wilderness fisheries.") Yet even when the Cook Inlet-Bristol Bay Road is ultimately completed, the accessibility provided to Southwest Alaska locations will be markedly different than that currently available to the Kenai River. The Southwest Alaska sports fisheries will not be an easy drive from Anchorage or other population centers in Southcentral Alaska.

Dr. Duffield's comments also seem to indicate some confusion about the scope of the proposed Iliamna–Nondalton project. For instance, Comment 19: "As an example of the significant impacts of the Iliamna–Nondalton project and the larger Cook Inlet–Bristol Bay project, suppose that with increased access the subsistence harvest in Nondalton and Newhalen fell to the same level as in Iliamna." The Iliamna–Nondalton project, however, will have no impact on the accessibility of Newhalen relative to Iliamna. Newhalen and Iliamna are currently connected by road and both have relatively good air access via the Iliamna Airport (which is actually as close to Newhalen as it is to Iliamna). Thus differences in subsistence harvests between Newhalen and Iliamna cannot be attributed to differences in access.

Dr. Duffield's second assertion regarding perceived flaws in the cost-effectiveness framework used in the Southwest Alaska Transportation Plan is that the travel demand forecasts presented in the plan are not reliable. His comments include several points. First he offers numerous comments on a travel demand model originally prepared in 1998, Southwest Alaska Transportation Plan – Travel Demand Forecasts Technical Memorandum (September 1998). This 1998 model was not used in preparing the travel demand forecasts presented in the Southwest Alaska Transportation Plan. It was superseded by another model, Southwest Alaska Transportation Plan – Description of Alternatives Technical Memorandum, Appendix H: Demand Estimate Methodologies (August 1999). The 1999 model was prepared to overcome a weakness in the earlier model, namely that it did not include distance. A characteristic observed in travel behavior is that travel increases as a function of the size of the attractions at each end (i.e. the more people there are the more trips will be made) and decreases as a function of the distance between the attractions. The 1999 model, which has these characteristics, was used to estimate all the roadway travel demand estimates in the Southwest Alaska Transportation Plan.

While many of Dr. Duffield's numerous comments concern a model not used for the Southwest Alaska Transportation Plan, he is correct in noting that forecasts based on a model fit to a very small data set are less reliable than those developed using a large data set. A small data set was used to estimate the model, however, for the simple reason that there are very few roadways connecting communities in Southwest Alaska from which to obtain observed data. Dr. Duffield comments concerning the statistical implications of the small data set, "In other words, one can not be confident from this model that there will be any additional trips created by the project." Yet Dr. Duffield clearly believes that the Iliamna–Nondalton project will result in additional travel, since if there were no additional travel because of the road the supposed impacts on sport fishing and subsistence activities that he decries in many of his comments would not occur. The purpose for which the travel forecasts are used needs to be remembered, that is, to provide relative comparisons among transportation improvements proposed for inclusion in the Plan.

It should also be noted that, from his comments, Dr. Duffield appears confused as to which model was used for the forecasts presented in the Southwest Alaska Transportation Plan. To reiterate what is stated above, a single model was used to provide all roadway travel estimates presented in the November 2002 Final Edition of the Plan and in the current Draft Revision to

the Plan. This is the model described in Southwest Alaska Transportation Plan – Description of Alternatives Technical Memorandum, Appendix H: Demand Estimate Methodologies (August 1999). Estimates were made for three different conditions: (1) Assuming that the Iliamna–Nondalton roadway is completed in the absence of any other components of the proposed Cook Inlet to Bristol Bay roadway system yields a 2020 forecast of 75,300 annual person trips. This includes trips on the road that are traveling between Nondalton and Iliamna and between Nondalton and Newhalen. (2) Assuming completion of the Cook Inlet to Bristol Bay roadway system yields a 2020 forecast of 99,300 annual person trips. This estimate includes not only trips between Nondalton and Iliamna and Newhalen but also trips to other communities on the future roadway system such as King Salmon and Naknek. (3) Assuming completion of the entire proposed Southwest Alaska roadway system, allowing travel by road to even more communities, from Dillingham to the Chigniks, yields a 2020 forecast of 114,900 annual person trips.

In conclusion, the intent in preparing the Draft Revision to the Southwest Alaska Transportation Plan, consistent with the January 5, 2004 court order, was to extract two projects from the previously defined baseline for the Southwest Plan, the Iliamna–Nondalton and the Dillingham–Aleknagik corridor projects, and to subject them to the same evaluation process used to assess other projects in the Southwest Alaska Transportation Plan. It appears that Dr. Duffield would have preferred that the Draft Revision to the Southwest Alaska Transportation Plan use a different evaluation process for the Iliamna–Nondalton project; yet that would have been inconsistent with the court order.